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OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, L.L.P. 1940 DUKE STREET ALEXANDRIA, VA 22314				
EXAMINER				
FEELY, MICHAEL J				
ART UNIT		PAPER NUMBER		
1796				
NOTIFICATION DATE		DELIVERY MODE		
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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### Office Action Summary

**Application No.**

10/581,684

**Applicant(s)**

STAHL ET AL.

**Examiner**

Michael J. Feely

**Art Unit**

1796

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 23 April 2007.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-21 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-6 and 9-21 is/are rejected.  
7) ☒ Claim(s) 7 and 8 is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☒ Information Disclosure Statement(s) (PTO/SF/88)  
Paper No(s)/Mail Date 20060905, 20070406, 20080220  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date: \_\_\_\_\_  
5) ☐ Notice of Informal Patent Application  
6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Pending Claims***

Claims 1-21 are pending.

***Priority***

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

***Claim Rejections - 35 USC § 101/35 USC § 112***

2. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 17 provides for the use of the composite material of claim 10, but, since the claim does not set forth *any steps* involved in the method/process, it is unclear what method/process applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced.

Claim 17 is rejected under 35 U.S.C. 101 because the claimed recitation of a use, without setting forth any steps involved in the process, results in an improper definition of a process, i.e., results in a claim which is not a proper process claim under 35 U.S.C. 101. See for example *Ex*

*parte Dunki*, 153 USPQ 678 (Bd.App. 1967) and *Clinical Products, Ltd. v. Brenner*, 255 F. Supp. 131, 149 USPQ 475 (D.D.C. 1966).

***Claim Rejections - 35 USC § 112***

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 4 and 19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 4 and 19 recite the limitation "the secondary barium sulphate particles" in the cured epoxy resin according to claim 1. There is insufficient antecedent basis for this limitation in the claim. Furthermore, it unclear how this *agglomerate* limitation further limits claim 1 because claim 1 features a *de-agglomerated* barium sulphate. The language of claim 1 suggests that the barium sulphate is *fully* de-agglomerated, while the language of claims 4 and 19 suggests that the barium sulphate is *partially* de-agglomerated. Clarification is required.

Furthermore, for the purpose of the prior art search, the term *de-agglomerated* has been interpreted to include *any degree* of de-agglomeration.

7. Claims 12-15 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: a *de-agglomerated* barium sulphate.

***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 1-6 and 9-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hosomi et al. (US Pat. No. 5,976,699) in view of Hardinghaus et al. (US 2003/0124048).

Regarding claims 1-3, 5, 6, 9-15, 18, and 20, Hosomi et al. disclose: *(1)* a cured epoxy resin (Abstract; Example 5: column 7, lines 8-22; column 6, lines 20-63) comprising barium sulphate (Example 5: column 7, lines 8-22; column 6, lines 20-63); *(2)* wherein the barium sulphate is present in an amount of 0.1% to 50% by weight (Example 5: column 7, lines 8-22; column 6, lines 20-63); *(5)* wherein the barium sulphate is dispersed in a hardener, polyol and/or in the uncured epoxy resin (Example 5: column 7, lines 8-22; column 6, lines 20-63); *(6)* wherein the hardener is based on polyoxyalkylenamines or in an anhydride hardener (Example 5: column 7, lines 8-22; column 6, lines 20-63); *(20)* obtainable by dispersing the barium sulphate in a precursor of the epoxy resin prior to its curing (Example 5: column 7, lines 8-22; column 6, lines 20-63);

*(10)* a composite material comprising epoxy resin according to claim 1 (Example 5: column 7, lines 8-22; column 6, lines 20-63, *particularly lines 47-63*); *(11)* comprising carbon fibre or glass fibre reinforcement (Example 5: column 7, lines 8-22; column 6, lines 20-63, *particularly lines 47-63*); and

(12) a composition comprising epoxy resin precursor (Abstract; Example 5: column 7, lines 8-22; column 6, lines 20-63), and barium sulphate (Example 5: column 7, lines 8-22; column 6, lines 20-63); (13) wherein the barium sulphate is present in an amount of 0.1% to 50% by weight, based on the total weight of the composition (Example 5: column 7, lines 8-22; column 6, lines 20-63);

(14) a composition comprising uncured epoxy resin (Abstract; Example 5: column 7, lines 8-22; column 6, lines 20-63) and barium sulphate (Example 5: column 7, lines 8-22; column 6, lines 20-63); (15) wherein the barium sulphate is present in an amount of 0.1% to 50% by weight, based on the total weight of the composition (Example 5: column 7, lines 8-22; column 6, lines 20-63).

As set forth above, Hosomi et al. disclose an epoxy-based adhesive featuring barium sulphate; however, they fail to disclose details regarding their barium sulphate filler. Accordingly, they fail to disclose the barium sulphate limitations set forth in claims 1, 3, 9, 12, 14, and 18.

Hardinghaus et al. disclose: (1) a de-agglomerated barium sulphate having an average primary particle size of  $< 0.5 \mu\text{m}$  (paragraphs 0021-0028; Example 3: paragraphs 0040-0043), the barium sulphate comprising a crystallization inhibitor and a dispersant (paragraphs 0021-0028: *wetting/dispersing agent acts as both a crystallization inhibitor and a dispersant*); (12 & 14) barium sulphate having a primary particle size  $< 0.5 \mu\text{m}$  (paragraphs 0021-0028; Example 3: paragraphs 0040-0043), and comprising crystallization inhibitor and a dispersant (paragraphs 0021-0028: *wetting/dispersing agent acts as both a crystallization inhibitor and a dispersant*); (3) wherein the primary particle size of the barium sulphate is in the range from  $0.01 \mu\text{m}$  to  $0.5$

$\mu\text{m}$  (paragraph 0027 & 0042); (9) wherein the crystallization inhibitor is citric acid or sodium polyacrylate (paragraphs 0023 & 0041); and (18) wherein the de-agglomerated barium sulphate has an average primary particle size of  $< 0.1 \mu\text{m}$  (paragraphs 0027 & 0042).

Furthermore, Hardinghaus et al. disclose that their de-agglomerated barium sulphate is particularly suitable for use as an additive for *adhesives*. In light of this, it has been found that the selection of a known material based on its suitability for its intended use supports a *prima facie* obviousness determination – see *MPEP 2144.07*.

Therefore, it would have been obvious to one of ordinary skill in the art the time of the invention use the instantly claimed de-agglomerated barium sulphate, as taught by Hardinghaus et al., as the barium sulphate in the epoxy-based adhesive of Hosomi et al. because Hardinghaus et al. disclose that their de-agglomerated barium sulphate is particularly suitable for use as an additive for *adhesives*.

Further regarding claim 1, the combined teachings fail to explicitly disclose: that the cured material features: (1) increased flexural impact strength and breaking extension coupled with retention of stiffness. However, it appears that the combined teachings would have satisfied these property limitations because the combined teachings satisfy all of the material/chemical limitations of the instant invention - see *MPEP 2122.01*.

Regarding claim 17, the combined teachings fail to explicitly disclose: (17) a method of use of the composite material according to claim 10 in watercraft construction, in wind turbines, pipes, containers, in vehicle construction or in aircraft construction. However, it appears that the multilayer printed circuit board (*composite material*) of the combined teachings would have been

inherently capable of being used in some capacity for the disclosed *uses*, particularly where computers or electronics are involved.

Regarding claims 4 and 19, the combined teachings fail to explicitly disclose: *(4)* wherein 90% of the secondary barium sulphate particles are smaller than 2  $\mu\text{m}$ ; *(19)* wherein 90% of the secondary barium sulphate particles are smaller than 250 nm. However, it appears that these limitations would have been satisfied by the combined teachings because the barium sulphate of Hardinghaus et al. satisfies all of the material/chemical and production limitations of the instant invention.

Regarding claims 16 and 21, the combined teachings would have satisfied the following process: *(16)* a process for producing epoxy resins according to claim 1, wherein barium sulphate is de-agglomerated in a precursor of the cured epoxy resin and then the cured epoxy resin is produced; *(21)* wherein the barium sulphate is dispersed in the hardener or in the uncured epoxy resin. This is because primary teachings of Hosomi et al. disperse the barium sulphate in the epoxy resin adhesive to produce a varnish. Hosomi et al. subsequently cure the varnish (*see Example 5*). Furthermore, the secondary teachings of Hardinghaus et al. disclose that their de-agglomerated barium sulphate is *re-dispersable* into particles having a particle size below 100 nm (*see paragraph 0027*). This re-dispersability and associated *de-agglomeration* would have been realized in the dispersion step of Hosomi et al.

### ***Double Patenting***

10. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection



is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

11. Claims 12-15 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over the combined limitations of claims 26, 43, and 53 of copending Application No. 11/916,340 (US 2009/0163638). Although the conflicting claims are not identical, they are not patentably distinct from each other because: the copending limitations satisfy all the limitations of instant claims 12-15.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

12. Claims 12-15 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over the combined limitations of claims 1, 15, and 25 of copending Application No. 10/581,685 (US 2007/0140938). Although the conflicting claims are not identical, they are not patentably distinct from each other because: the copending limitations satisfy all the limitations of instant claims 12-15.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

13. Claims 12-15 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over the combined limitations of claims 1-36 (*particularly claims 1, 14 and 17-30*) of copending Application No. 10/596,007 (US 2007/0167535). Although the conflicting claims are not identical, they are not patentably distinct from each other because: the copending limitations satisfy all the limitations of instant claims 12-15.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

***Allowable Subject Matter***

14. Claims 7 and 8 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

*Communication*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael J. Feely whose telephone number is (571)272-1086. The examiner can normally be reached on M-F 8:30 to 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Harold Y. Pyon can be reached on 571-272-1498. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Michael J Feely/  
Primary Examiner, Art Unit 1796

January 19, 2010